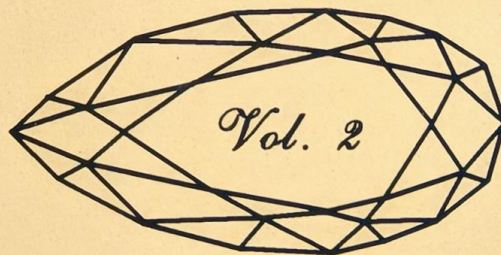


The Book of Gem Cuts



INTRODUCTION

TWENTY-FIVE years ago the first BOOK OF GEM CUTS blazed the way for amateur lapidaries all over the country to explore the previously, and almost unknown, field of faceting. A certain amount of information, it is true, had been accruing over a period of years, due largely to the efforts of a small group of ardent amateurs. These were capable people, who with little to go on but their own ingenuity and perseverance, found the facts behind the mystery, and developed techniques which rival that of professional cutters. But the great majority of would-be faceters were still very much in the dark.

The first BOOK OF GEM CUTS changed the picture a good deal. "Secret" procedures, tricks of the trade and much specialized information was made available for the first time to the growing number of ambitious beginners.

Now we are beginning to grow up a little. We are looking around for harder problems and keener challenges. In this book you will find them. This time the accent is not so much on procedures, although they are as thoroughly gone into as before, but now we also explore the unusual in design. Very beautiful cuts will be found here, patterns that are seldom seen, and then only in the most expensive custom work. Maybe you thought you never would be able to cut gems in the shape of hearts, marquises and pendeloques. Here you will find that you can. And that isn't all. You will notice, as you go along, a growing freedom in the way you handle your gems; and as you realize the endless variety of shapes possible, your imagination will be stimulated and you will begin to work out your own designs.

When that happens you will have made a full circle back to all that was finest in the jamb-peg cutting of the past, and will combine technical excellence with artistic freedom. No amateur can ask for more.

We take great pleasure in presenting Volume 2 of *The Book of Gem Cuts*



MDR Manufacturing, Inc.

The home of Master faceting instruments

P.O. Box 6951
Kingwood, Texas 77325

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PHYSICAL PROPERTIES

CONTENTS

Book of Gem Cuts, Volume II

PHYSICAL PROPERTIES

POLISHING RECOMMENDATIONS

TRANSPOSITION OF ANGLES

- | | |
|--------|-------------------------------------|
| No. 1 | Brilliant Briolette Cut |
| No. 2 | Reverse Cut |
| No. 3 | Brilliant Bead Cut |
| No. 4 | Double Diamond Cut - Horizontal |
| No. 5 | Double Diamond Cut - Vertical |
| No. 6 | Portuguese Cut |
| No. 7 | Mixed Cut |
| No. 8 | Pseudo Marguis Cut |
| No. 9 | Step Cut Bead |
| No. 10 | Marquis Cut |
| No. 11 | Step Cut Heart |
| No. 12 | Brilliant Heart Cut |
| No. 13 | Pendeloque Cut |
| No. 14 | Bar Cut |
| No. 15 | Checker Cut |
| No. 16 | Scissors Cut |
| No. 17 | Zizag Cut |
| No. 18 | Skew Cut |
| No. 19 | Step Cut Oval |
| No. 20 | Brilliant Oval Cut |
| No. 21 | Cairo Cut |
| No. 22 | Brilliant Briolette Cut (Variation) |

Cut angles are computed from the
measured refractive index values.

BRILLIANT BRIOLETTE CUT HORIZONTAL SPLITS

No. 1

CUT

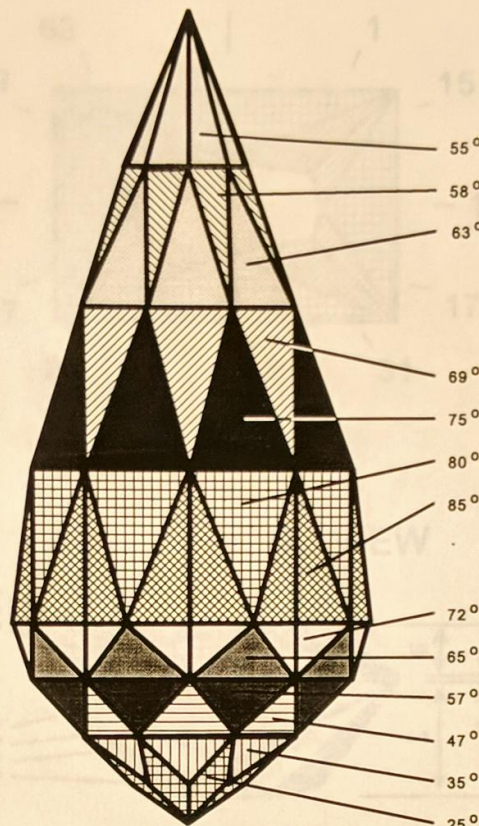


- | | | |
|---|--|---|
| 7 | | 1 |
| 6 | | 2 |
| 5 | | 3 |
| 4 | | 4 |
| 3 | | 5 |
| 2 | | 6 |
| 1 | | 7 |

POLISH



SIDE VIEW



CUT

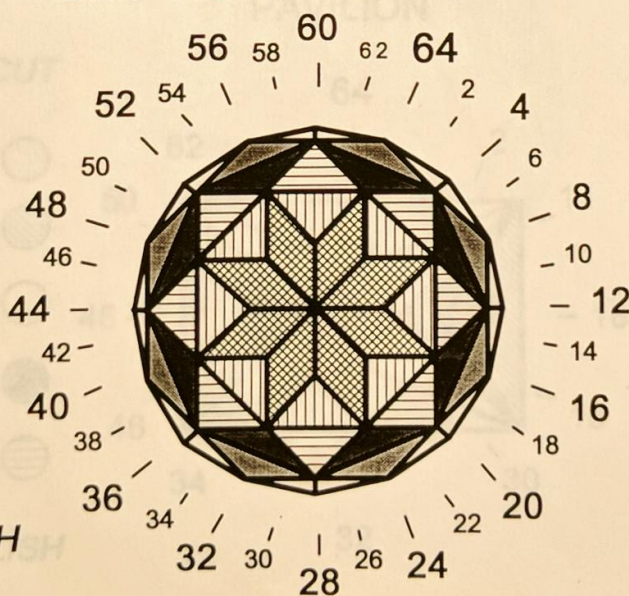


- | | | |
|---|--|---|
| 5 | | 1 |
| 6 | | 2 |
| 4 | | 3 |
| 3 | | 4 |
| 2 | | 5 |
| 1 | | 6 |

POLISH



END VIEW



64 Index - Angles for Quartz

NOTE: Top of stone should be cut first.

ORDER OF CUTTING - Top

GRIND 1st: Eight facets at 80° indexing
64-8-16-24-32-40-48-56.

GRIND 2nd: Sixteen facets at 85° indexing
2-6-10-14-18-22-26-30-34-38-42-46-50-54-58-62.

GRIND 3rd: Eight facets at 75° indexing
64-8-16-etc.

GRIND 4th: Eight facets at 69° indexing
4-12-20-28-36-44-52-60.

GRIND 5th: Eight facets at 63° indexing
4-12-20-28-36-44-52-60.

GRIND 6th: Eight facets at 58° indexing
64-8-16-etc.

GRIND 7th: Eight facets at 55° indexing
64-8-16-etc.

ORDER OF POLISHING - Top

See polishing order on left, using same angles and indices as with grinding.

OPRIONAL: Girdle facets may be ground first, or last, at 90° using Indices of 2-6-10-14-18-22-26-30-34-38-42-46-50-54-58-62. Polishing should be completed at this setting.

ORDER OF CUTTING - Bottom

GRIND 1st: Eight facets at 65° indexing
64-8-16-24-32-40-48-56.

GRIND 2nd: Sixteen facets at 72° indexing
2-6-10-14-18-22-26-30-34-38-42-46-50-54-58-62.

GRIND 3rd: Eight facets at 57° indexing
64-8-16-etc.

GRIND 4th: Eight facets at 47° indexing
4-12-20-28-36-44-52-60.

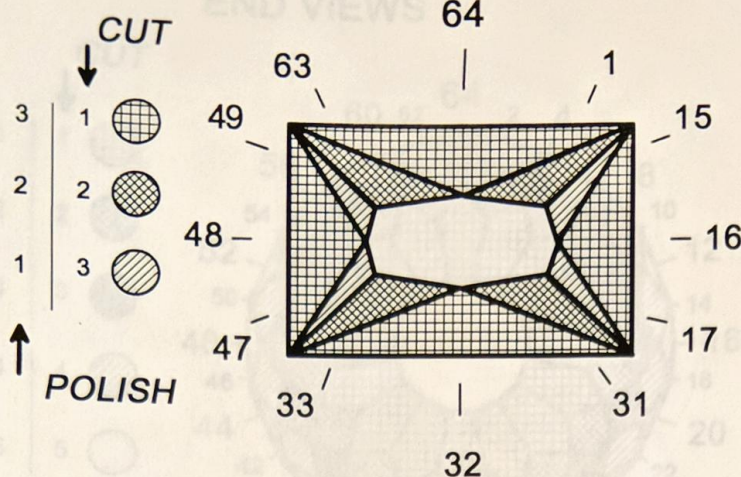
GRIND 5th: Eight facets at 35° indexing
4-12-20-28-36-44-52-60.

GRIND 6th: Eight facets at 25° indexing
64-8-16-etc.

ORDER OF POLISHING - Bottom

See polishing order on left, using same angles and indices as with grinding.

CROWN



64 Index - Angles for Quartz

ORDER OF CUTTING - Crown

GRIND 1st: Four facets at 42° indexing 64-16-32-48.

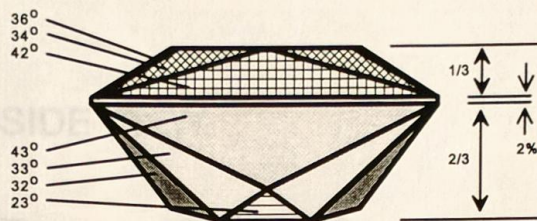
GRIND 2nd: Four facets at 34° indexing 63-1-31-33.

GRIND 3rd: Four facets at 36° indexing 15-17-47-49.

ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

SIDE VIEW



ORDER OF CUTTING - Pavilion

GRIND 1st: Two facets at 43° indexing 64-32.

GRIND 2nd: Two facets at 39° indexing 16-48.

GRIND 3rd: Four facets at 33° indexing 62-2-30-34.

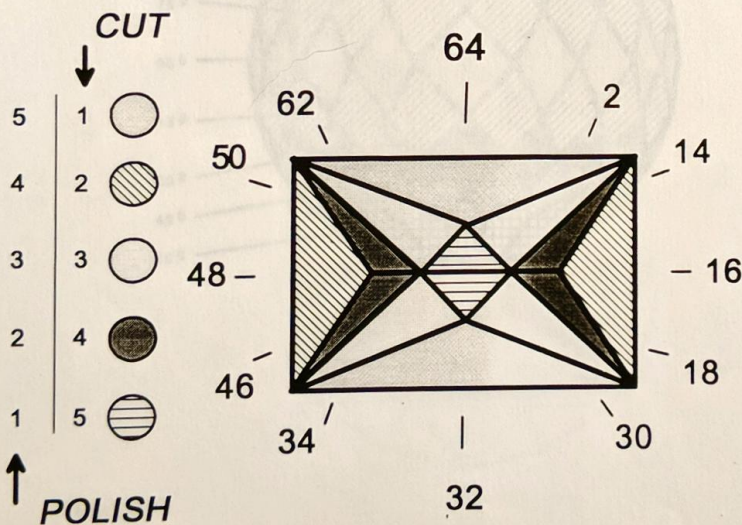
GRIND 4th: Four facets at 32° indexing 14-18-46-50.

GRIND 5th: Two facets at 23° indexing 64-32.

ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.

PAVILION

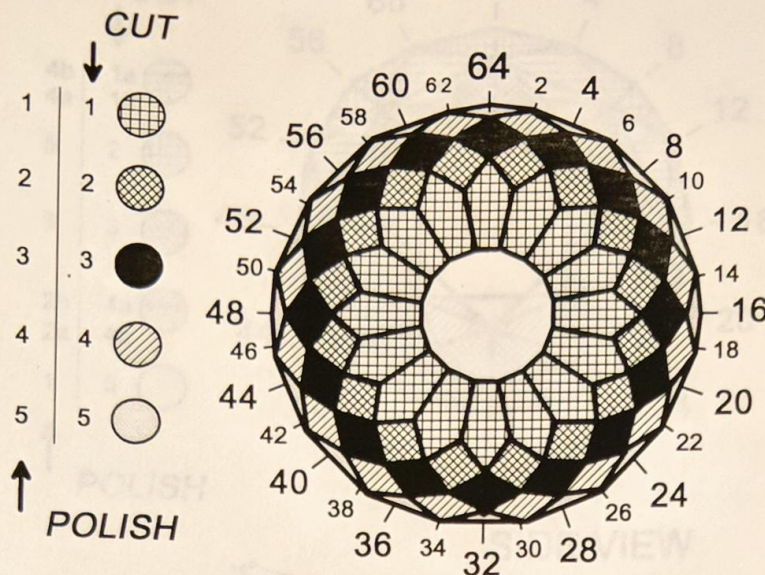


Cut and polish table in 45° angle dop approximately 40% of the width of the stone at the girdle.

BRILLIANT BEAD CUT

No. 3

END VIEWS



64 Index - Angles for Quartz

ORDER OF CUTTING - Both Ends

Cut and polish "tables" in 45° angle dop.

GRIND 1ST: Sixteen facets at 30° indexing

64-4-8-12-16-20-24-28-

32-36-40-44-48-52-56-60.

GRIND 2nd: Sixteen facets at 45° indexing

2-6-10-14-18-22-26-30-

34-38-42-46-50-54-58-62.

GRIND 3rd: Sixteen facets at 60° indexing

64-4-8-etc.

GRIND 4th: Sixteen facets at 75° indexing

2-6-10-etc..

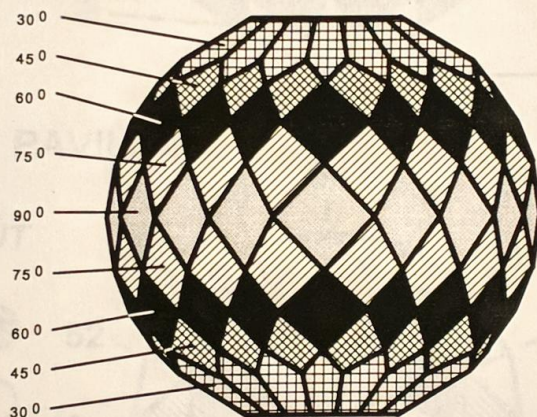
GRIND 5th: Sixteen facets at 90° indexing

12-36-60-84. The fifth grind is common to both ends, and is cut on one only.

ORDER OF POLISHING - Both Ends

See polishing order on left, using same angles and indices as were used in grinding. After completing one end of the bead, reverse on dop and repeat from beginning, on the other end, omitting the 5th grind.

SIDE VIEW



GRIND 1st:

(16) Eight facets at 30° indexing

64-8-16-24-32-40-48-56-

(16) Eight facets at 45° indexing

64-8-16-etc.

GRIND 2nd: Sixteen facets at 75° indexing

12-36-etc.

GRIND 3rd: Sixteen facets at 45° indexing

62-8-etc.

GRIND 4th: Eight facets at 45° indexing

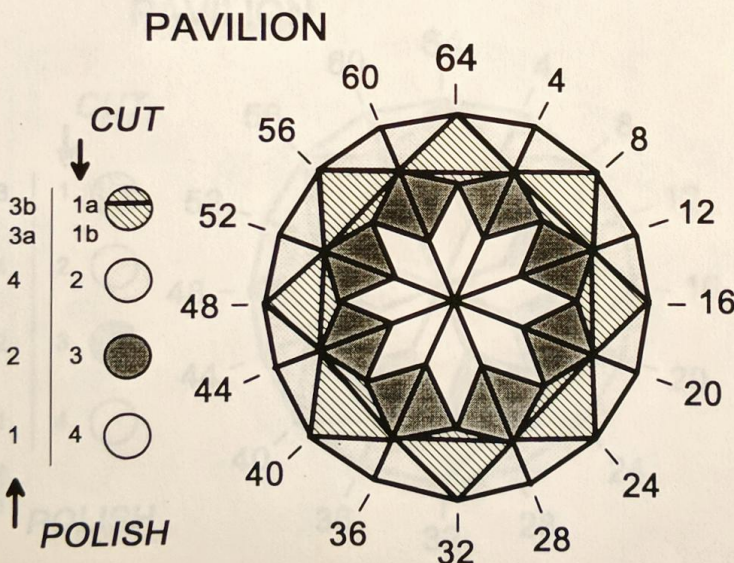
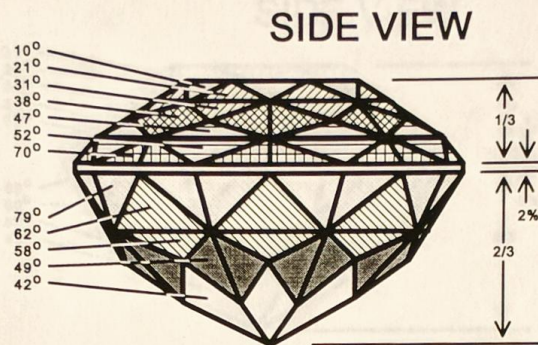
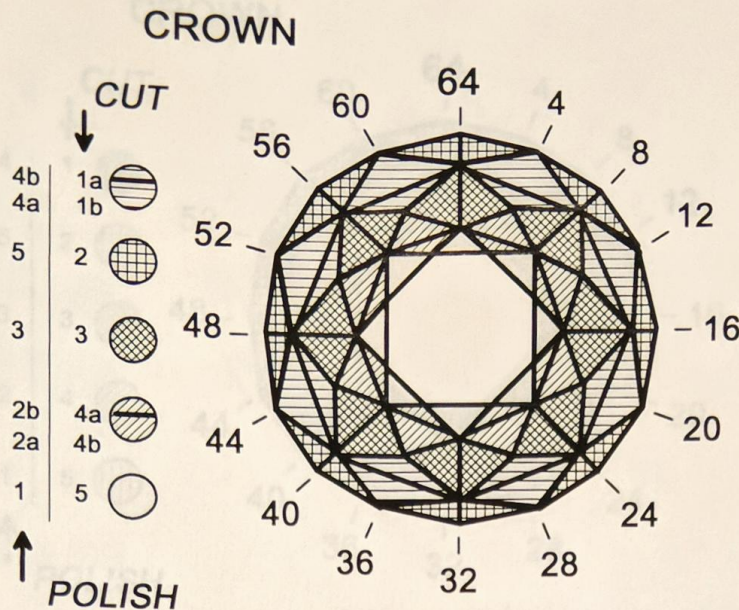
64-8-16-24-32-40-48-56.

ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.

DOUBLE DIAMOND CUT HORIZONTAL SPLITS

No. 4



64 Index - Angles for Quartz

ORDER OF CUTTING - Crown

Cut and polish table in 45° angle dop approximately 35% of the width of the stone at the girdle.

GRIND 1st:

(b): Eight facets at 52° indexing
4-12-20-28-36-44-52-60.

(a): Eight facets at 47° indexing
4-12-20-etc.

GRIND 2nd: Sixteen facets at 70° indexing
62-2-6-10-14-18-22-26-
30-34-38-42-46-50-54-58.

GRIND 3rd: Sixteen facets at 38° indexing
62-2-6-etc.

GRIND 4th:

(b): Eight facets at 31° indexing
4-12-20-etc.

(a): Eight facets at 21° indexing
4-12-20-etc.

GRIND 5th: Eight facets at 10° indexing
64-8-16-24-32-40-48-56.

ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

GRIND 1st:

(b): Eight facets at 62° indexing
64-8-16-24-32-40-48-56.

(a): Eight facets at 58° indexing
64-8-16-etc.

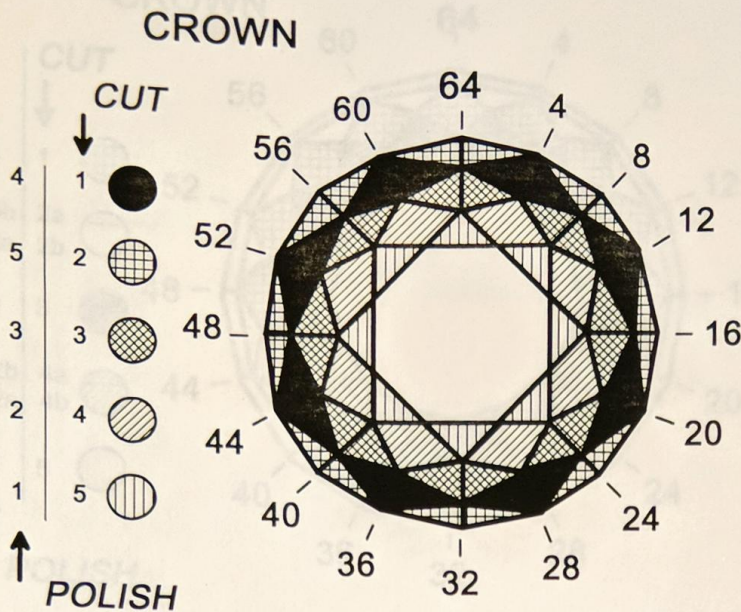
GRIND 2nd: Sixteen facets at 79° indexing
62-2-6-etc.

GRIND 3rd: Sixteen facets at 49° indexing
62-2-6-etc.

GRIND 4th: Eight facets at 42° indexing
64-8-16-24-32-40-48-56.

ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.



64 Index - Angles for Quartz

ORDER OF CUTTING - Crown

Cut and polish table in 45° angle dop approximately 40% of the width of the stone at the girdle.

GRIND 1st: Eight facets at 52° indexing 4-12-20-28-36-44-52-60

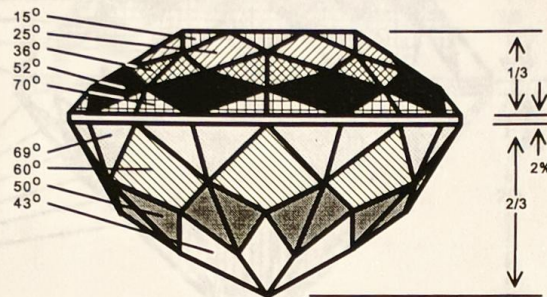
GRIND 2nd: Sixteen facets at 70° indexing 62-2-6-10-14-18-22-26-30-34-38-42-46-50-54-58.

GRIND 3rd: Sixteen facets at 36° indexing 62-2-6-etc.

GRIND 4th: Eight facets at 25° indexing 4-12-20-etc.

GRIND 5th: Eight facets at 15° indexing 64-8-16-24-32-40-48-56.

SIDE VIEW



ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

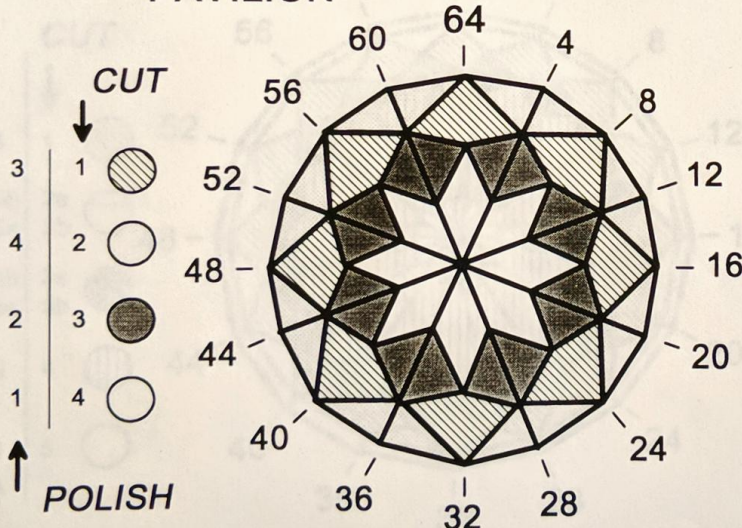
GRIND 1st: Eight facets at 60° indexing 64-8-16-24-32-40-48-56.

GRIND 2nd: Sixteen facets at 69° indexing 62-6-10-14-18-22-26-30-34-38-42-46-50-54-58.

GRIND 3rd: Sixteen facets at 50° indexing 62-2-6-etc.

GRIND 4th: Eight facets at 43° indexing 64-8-16-24-32-40-48-56.

PAVILION

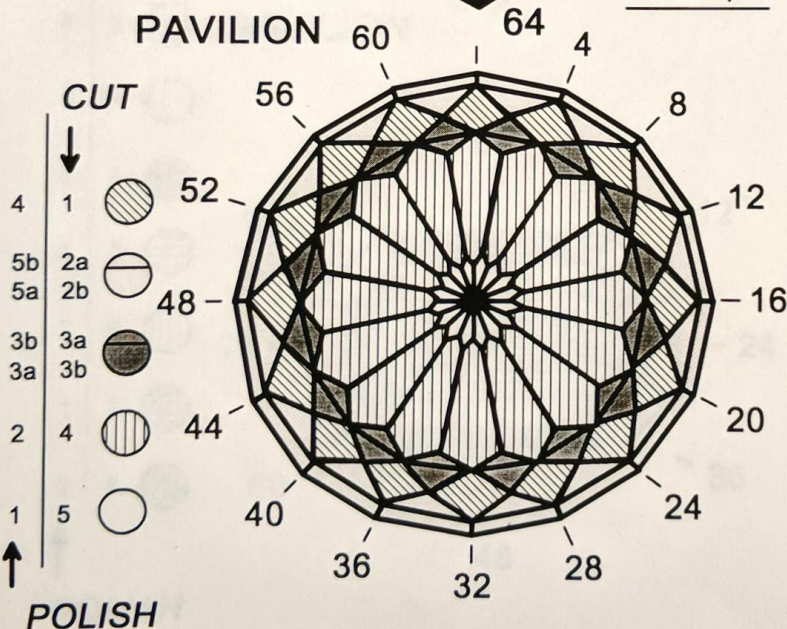
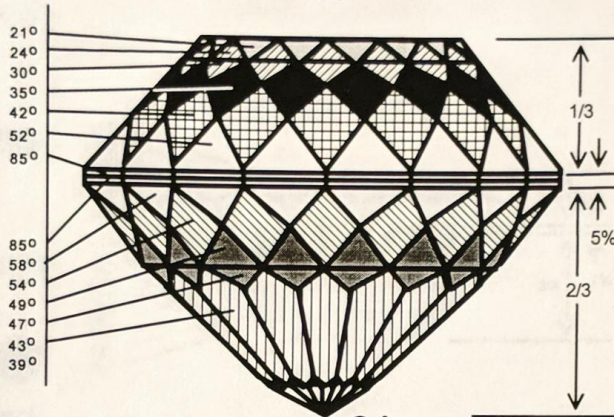
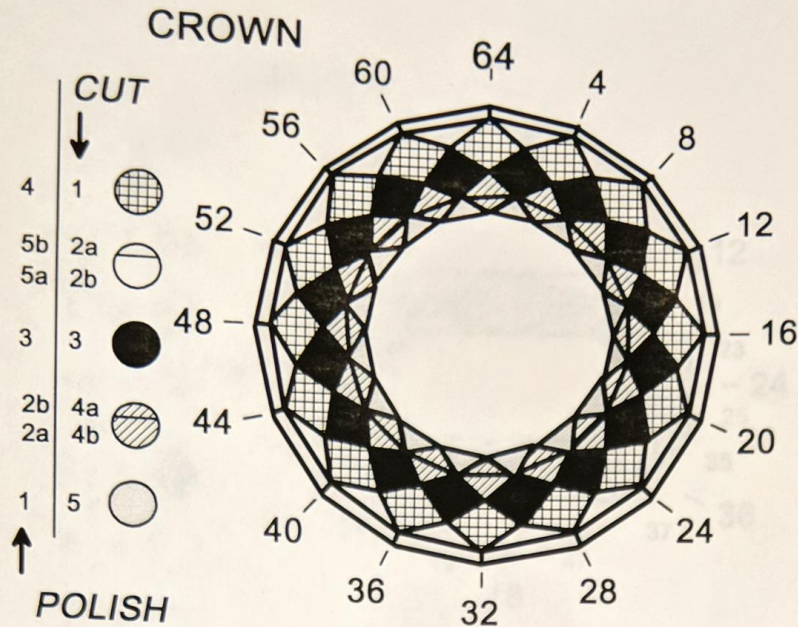


ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.

PORTUGUESE CUT

No. 6



64 Index - Angles for Quartz

ORDER OF CUTTING - Crown

Cut and polish table in 45° dop holder. Table to be approximately 40% of girdle width after crown faceted.

GRIND 1st: Sixteen facets at 42° indexing 64-4-8-12-16-20-24-28-32-36-40-44-48-52-56-60.

GRIND 2nd:

(b): Sixteen facets at 52° indexing 62-2-6-10-14-18-22-26-30-34-38-42-46-50-54-58

(a): Sixteen facets at 85° indexing 62-2-6-etc.

GRIND 3rd: Sixteen facets at 35° indexing 62-2-6-etc.

GRIND 4th:

(b): Sixteen facets at 30° indexing 64-4-8-etc.

(a): Sixteen facets at 24° indexing 64-4-8-etc.

GRIND 5th: Sixteen facets at 21° indexing 62-2-6-etc.

ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indicies as with grinding.

ORDER OF CUTTING - Pavilion

GRIND 1st: Sixteen facets at 54° indexing 64-4-8-etc.

GRIND 2nd:

(b): Sixteen facets at 58° indexing 62-2-6-etc.

(a): Sixteen facets at 85° indexing 62-2-6-etc.

GRIND 3rd:

(b): Sixteen facets at 49° indexing 62-2-6-etc.

(a): Sixteen facets at 47° indexing 62-2-6-etc.

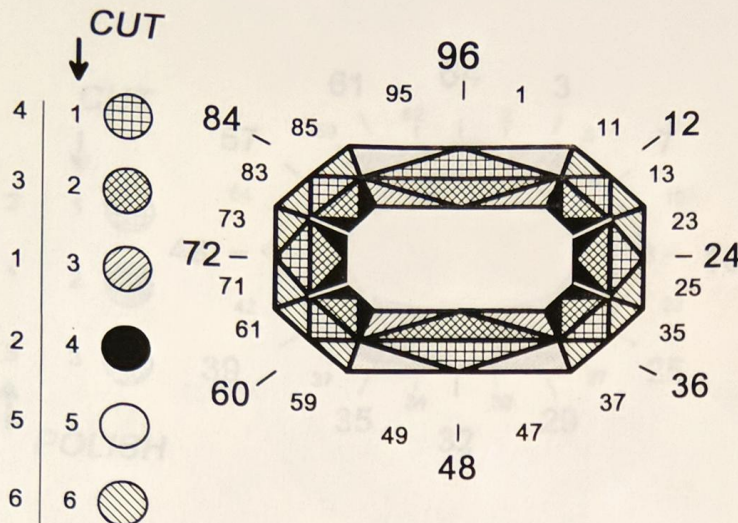
GRIND 4th: Sixteen facets at 43° indexing 64-4-8-etc.

GRIND 5th: Sixteen facets at 39° indexing 62-2-6-etc.

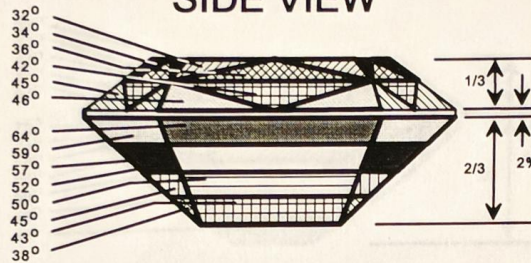
ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indicies as with grinding.

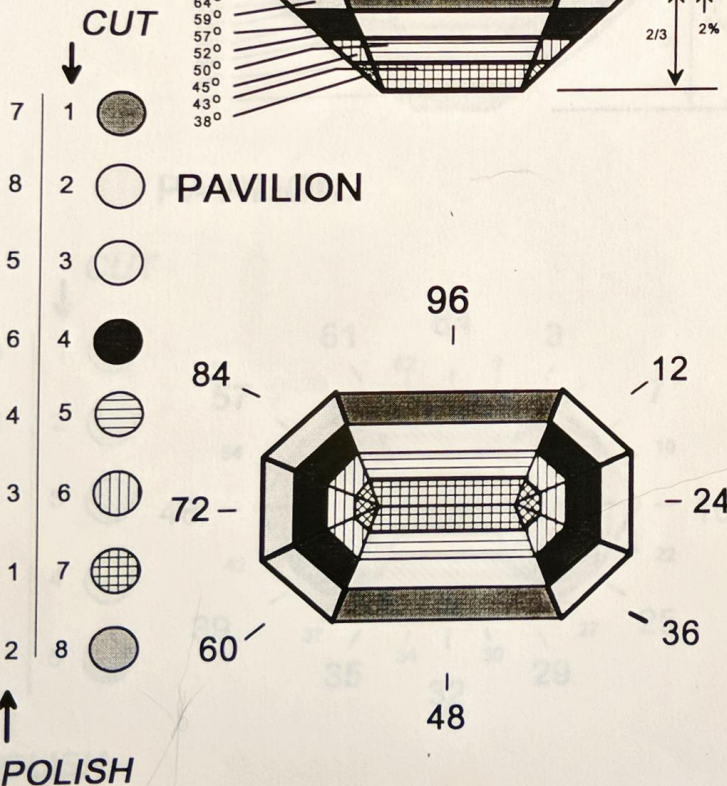
CROWN



SIDE VIEW



PAVILION



96 Index - Angles for Quartz

ORDER OF CUTTING - Crown

Cut and polish table in 45° dop holder. Table to be approximately 45% of girdle width after crown faceted.

GRIND 1st: Eight facets at 42° indexing 96-48, 24-72, 12-84, 36-60.

GRIND 2nd: Eight facets at 36° indexing 96-48, 24-72, 12-84, 36-60.

GRIND 3rd: Four facets at 32° indexing 95-1, 47-49.

GRIND 4th: Twelve facets at 34° indexing 35-37, 11-13, 83-85, 59-61, 71-73, 23-25.

GRIND 5th: Four facets at 46° indexing 95-1, 47-49.

GRIND 6th: Twelve facets at 45° indexing 35-37, 11-13, 83-85, 59-61, 71-73, 23-25.

ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

GRIND 1st: Two facets at 64° indexing 96-48.

GRIND 2nd: Six facets at 59° indexing 12-24-36, 60-72-84.

GRIND 3rd: Two facets at 57° indexing 96-48.

GRIND 4th: Six facets at 52° indexing 12-24-36, 60-72-84.

GRIND 5th: Two facets at 50° indexing 96-48.

GRIND 6th: Six facets at 45° indexing 12-24-36, 60-72-84.

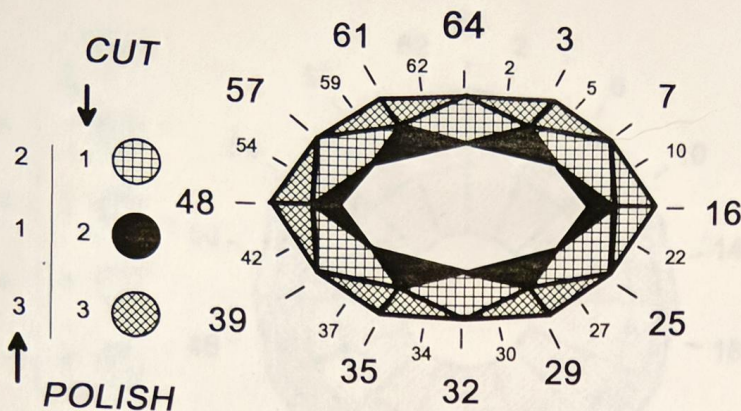
GRIND 7th: Two facets at 43° indexing 96-48.

GRIND 8th: Six facets at 38° indexing 12-24-36, 60-72-84.

ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.

CROWN



64 Index - Angles for Quartz

ORDER OF CUTTING - Crown

NOTE: After preforming, rough in girdle at 90° , using indices 64-7-25-32-39-57. (Don't carry this step too far.)

Cut and polish table in 45° dop holder. Table to be approximately 40% of girdle width after crown faceted.

GRIND 1st: Six facets at 42° indexing 64-7-25-32-39-57.

GRIND 2nd: Eight facets at 27° indexing 3-61, 29-35, 10-22, 42-54.

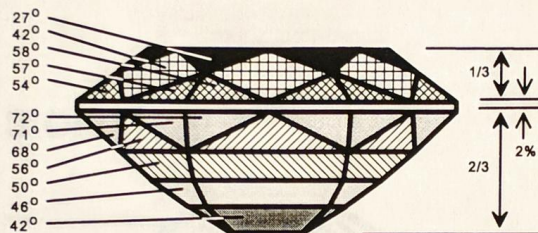
GRIND 3rd:

Four facets at 58° indexing 2-62, 30-34.

Four facets at 57° indexing 5-59, 27-37.

Four facets at 54° indexing 10-22, 42-54.

SIDE VIEW



ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

GRIND 1st: Six facets at 56° indexing 64-7-25-32-39-57.

GRIND 2nd:

Four facets at 72° indexing 2-62, 30-34.

Four facets at 71° indexing 5-59, 27-37.

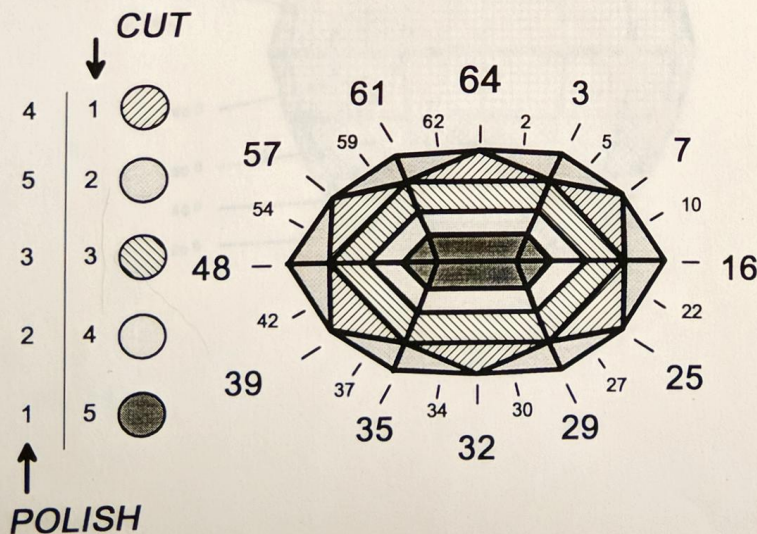
Four facets at 68° indexing 10-22, 42-54.

GRIND 3rd: Six facets at 50° indexing 64-7-25-32-39-57.

GRIND 4th: Six facets at 46° indexing 64-7-25-32-39-57.

GRIND 5th: Six facets at 42° indexing 64-7-25-32-39-57.

PAVILION



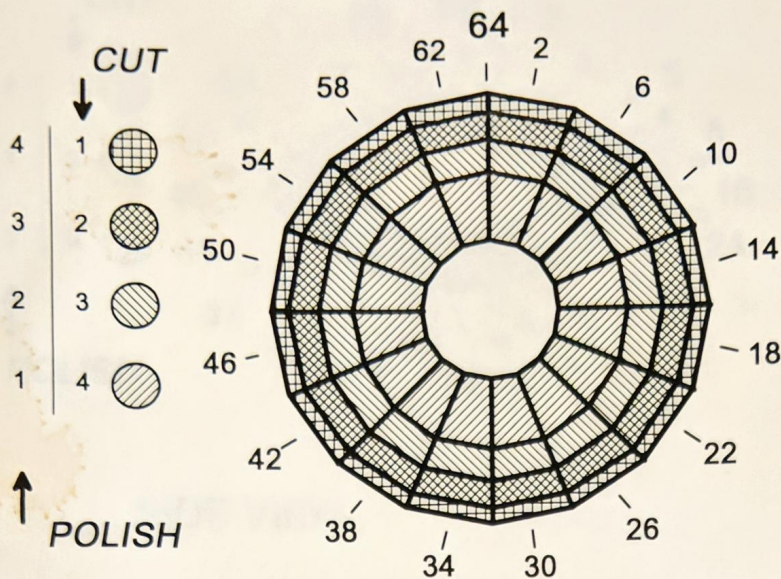
ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.

STEP CUT BEAD

No. 9

END VIEWS



64 Index - Angles for Quartz

ORDER OF CUTTING - Both Ends

Cut and polish "tables" in 45° angle dop.

GRIND 1st: Sixteen facets at 80° indexing
2-6-10-14-18-22-26-30

34-38-42-46-50-54-58-62.

GRIND 2nd: Sixteen facets at 60° indexing
2-6-10-etc.

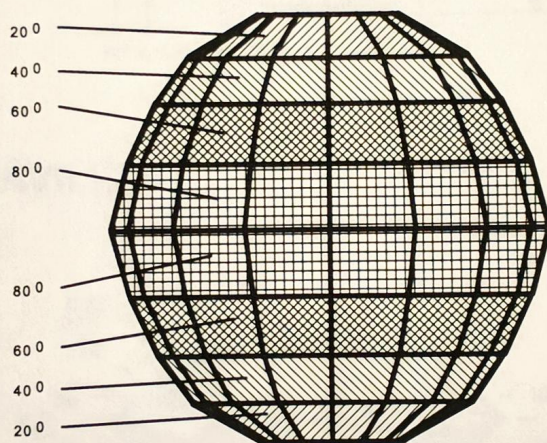
GRIND 3rd: Sixteen facets at 40° indexing
~~2-6-10-etc.~~

GRIND 4th: Sixteen facets at 20° indexing
2-6-10-etc..

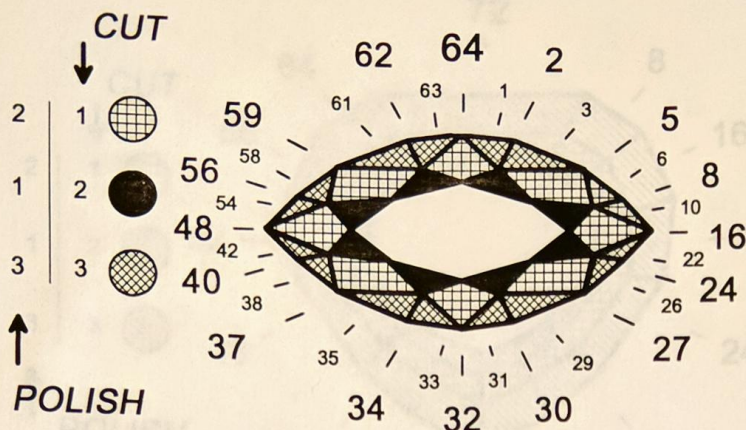
ORDER OF POLISHING - Both Ends

See polishing order on left, using same angles and indices as were used in grinding. After completing one end of the bead, reverse on dop and repeat from beginning, on the other end.

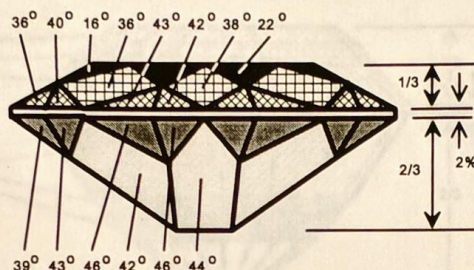
SIDE VIEW



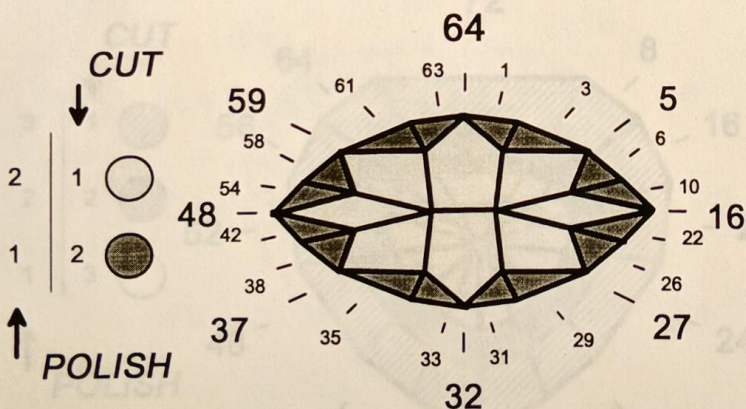
CROWN



SIDE VIEW



PAVILION



64 Index - Angles for Quartz

ORDER OF CUTTING - Crown

NOTE: Stone should be twice as long as it is wide. In preforming stone follow proportions of drawing as closely as possible, as deviations necessitate changes in angles. This is particularly true at the girdle facets. Modify angles to maintain level girdle line if necessary.

Cut and polish table in 45° dop holder. Table to be approximately 40% of girdle width after crown faceted.

GRIND 1st:

- Two facets at 38° indexing 64-32.
- Four facets at 36° indexing 37-59, 5-27.
- Two facets at 27° indexing 16-48.

GRIND 2nd:

- Four facets at 22° indexing 2-62, 30-34.
- Four facets at 16° indexing 40-56, 8-24.

GRIND 3rd:

- Four facets at 42° indexing 1-63, 31-33.
- Four facets at 43° indexing 3-61, 29-35.
- Four facets at 40° indexing 6-58, 26-38.
- Four facets at 36° indexing 42-54, 10-22.

ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

SUGGESTION: Use extreme care aligning pavilion and crown facets. Suggest cutting one set of girdle facets at index 1-61 at approximately 50° first. When centered, the resulting line will point directly to tip of crown main cut at index 64.

GRIND 1st:

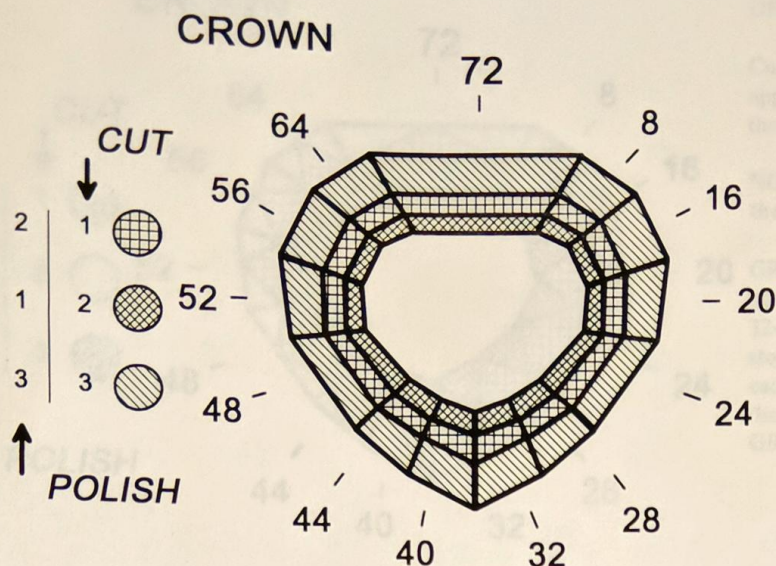
- Two facets at 44° indexing 64-32.
- Four facets at 42° indexing 37-59, 5-27.
- Two facets at 31° indexing 16-48.

GRIND 2nd:

- Eight facets at 46° indexing 1-63, 31-33, 3-61, 29-35.
- Four facets at 43° indexing 6-58, 26-38.
- Four facets at 39° indexing 42-54, 10-22.

ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.



72 Index - Angles for Quartz

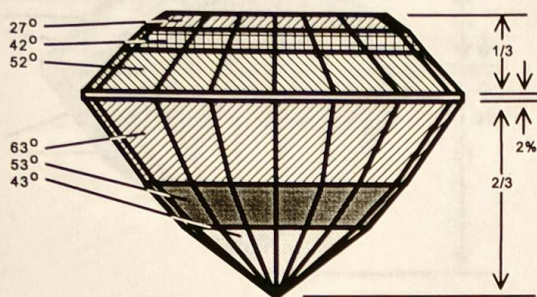
ORDER OF CUTTING - Crown

Cut and polish table in 45° dop holder. Table to be approximately 60% of girdle width after crown is faceted.

NOTE: Each pair must be c width at the table or gem will not be symmetrical.

GRIND 1st: Thirteen facets at 42° indexing 72, 8-64, 16-56, 20-52, 24-48, 28-44, 32-40.
GRIND 2nd: Thirteen facets at 27° indexing 72, 8-64, 16-56, 20-52, 24-48, 28-44, 32-40.
GRIND 3rd: Thirteen facets at 52° indexing 72, 8-64, 16-56, 20-52, 24-48, 28-44, 32-40.

SIDE VIEW



ORDER OF POLISHING - Crown

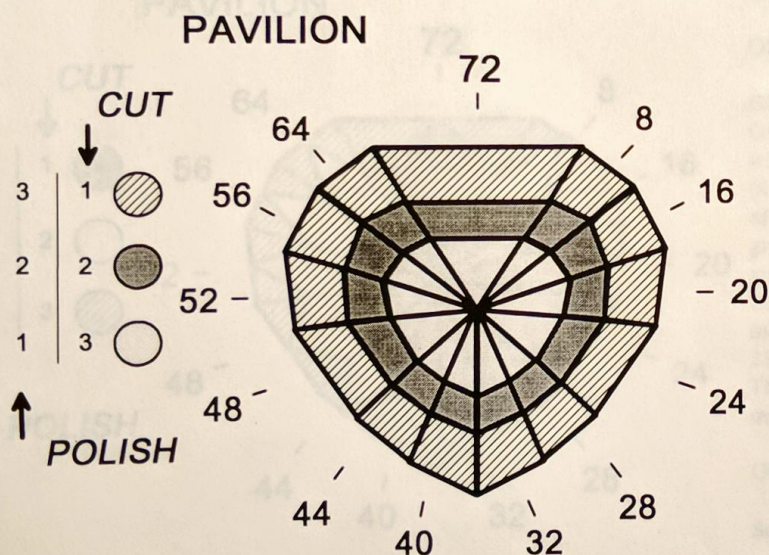
See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

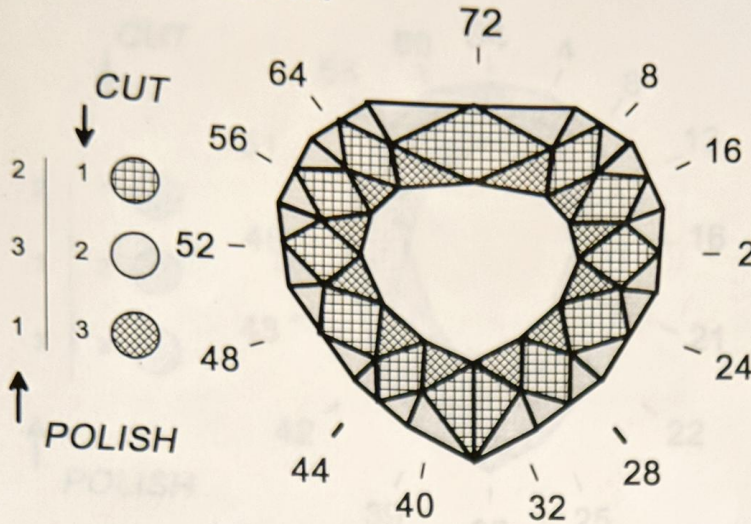
GRIND 1st: Thirteen facets at 63° indexing 72, 8-64, 16-56, 20-52, 24-48, 28-44, 32-40.
GRIND 2nd: Thirteen facets at 53° indexing 72, 8-64, 16-56, 20-52, 24-48, 28-44, 32-40.
GRIND 3rd: Thirteen facets at 43° indexing 72, 8-64, 16-56, 20-52, 24-48, 28-44, 32-40.

ORDER OF POLISHING - Pavilion

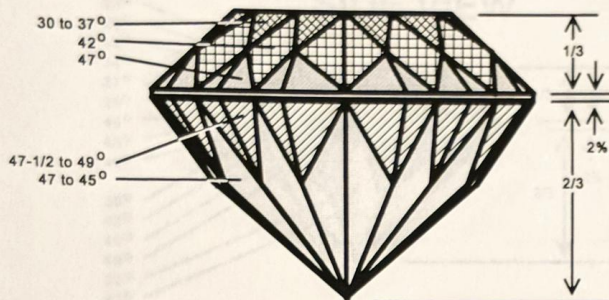
See polishing order on left, using same angles and indices as with grinding.



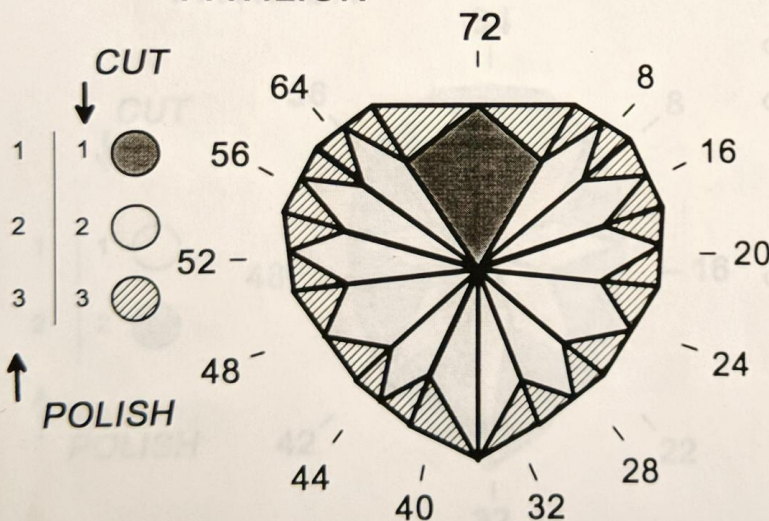
CROWN



SIDE VIEW



PAVILION



72 Index - Angles for Quartz

ORDER OF CUTTING - Crown

Cut and polish table in 45° angle dop approximately 60% of the width of the stone at the girdle.

NOTE: Each pair must be cut to same width at the table or gem will not be symmetrical.

GRIND 1st: Thirteen facets (mains) at 42° indexing 72, 8-64, 16-56, 20-52, 24-48, 28-44, 32-40. After grinding mains, check symmetry of stone. Adjust shape by grinding girdle down until each pair of opposite mains is the same width at the table.

GRIND 2nd:

- Two facets at 37° indexing 1-71.
- Two facets at 36° indexing 12-60.
- Two facets at 35° indexing 18-54.
- Two facets at 33° indexing 22-50.
- Two facets at 32° indexing 26-46.
- Two facets at 30° indexing 30-42.

GRIND 3rd:

- Two facets at $47-1/2^\circ$ indexing 1-71.
- Two facets at 47° indexing 6-66.
- Four facets at $46-1/2^\circ$ indexing 10-62, 14-58.
- Four facets at 46° indexing 17-55, 19-53.
- Eight facets at $45-1/2^\circ$ indexing 21-51, 23-49, 25-47, 27-45.
- Two facets at 45° indexing 29-43.
- Two facets at $44-1/2^\circ$ indexing 31-41.

ORDER OF POLISHING - Crown

See polishing order on left.

ORDER OF CUTTING - Pavilion

GRIND 1st: One facet at 49° indexing 72.

GRIND 2nd: Two facets indexing 32-40 at angle which brings them to point with 72 index facet (47° to 45°). All remaining facets at index pairs of 8-64, 16-56, 20-52, 24-48 and 28-44 are ground so they meet at culet, leaving an even girdle width.

GRIND 3rd: Twenty-four facets at $47-1/2^\circ$ to 49° indexing 1-71, 6-66, 10-62, 14-58, 17-55, 19-53, 21-51, 23-49, 25-47, 27-45, 29-43 and 31-41. The girdle facets should be about $2/3$ length of the main facets.

ORDER OF POLISHING - Pavilion

See polishing order on left.

64 Index - Angles for Quartz

ORDER OF CUTTING - Crown

Cut and polish table in 45° dop holder. Table to be approximately 40% of girdle width after faceting crown.

NOTE: As in all freehand shapes, angles must not be taken too literally, especially for girdle facets.

GRIND 1st:

- One facet at 42° indexing 64.
- Two facets at 43° indexing 8-56.
- Two facets at 44° indexing 16-48.
- Two facets at 34° indexing 22-42.
- One facet at 27-1/2° indexing 32.

GRIND 2nd:

- Two facets at 25° indexing 4^L-60^R.
- Two facets at 28° indexing 13-51.
- Four facets at 23° indexing 21^{RR}-43^{LL} and 25^R-39^L.

^L = 1° compound angle adjustment to left.

^R = 1° compound angle adjustment to right.

^{LL} = 3° compound angle adjustment to left.

^{RR} = 3° compound angle adjustment to right.

GRIND 3rd:

- Two facets at 50° indexing 2-62.
- Four facets at 52° indexing 6-58 and 11-53.
- Two facets at 57° indexing 14-50.
- Two facets at 49° indexing 17-47.
- Two facets at 43° indexing 21-43.
- Two facets at 40° indexing 23-41.
- Two facets at 29° indexing 31-33.

ORDER OF POLISHING - Crown

See polishing order on left.

ORDER OF CUTTING - Pavilion

GRIND 1st:

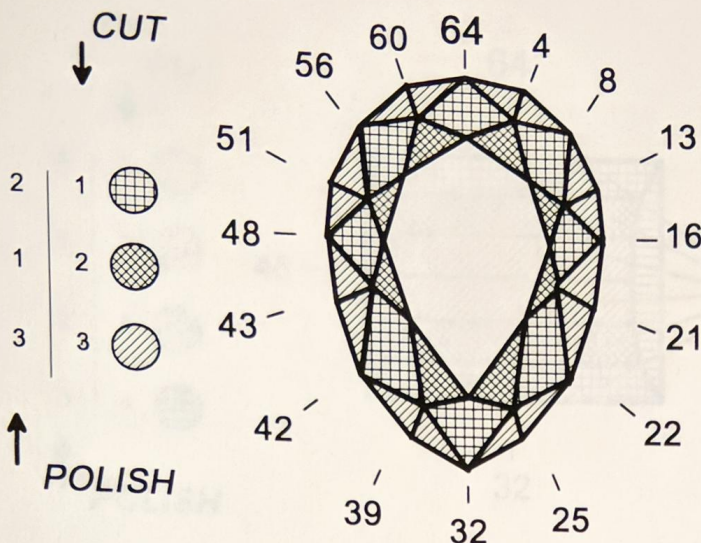
- One facet at 41° indexing 64.
- Two facets at 42° indexing 8-56.
- Two facets at 46° indexing 16-48.
- Two facets at 42° indexing 22-42.
- One facet at 33° indexing 32.

GRIND 2nd:

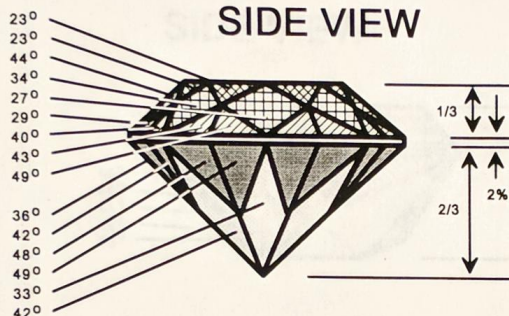
- Two facets at 43° indexing 2-62.
- Two facets at 44° indexing 6-58.
- Two facets at 47° indexing 10-54.
- Two facets at 48° indexing 14-50.
- Two facets at 49° indexing 17-47.
- Two facets at 48° indexing 21-43.
- Two facets at 42° indexing 23-41.
- Two facets at 36° indexing 31-33.

See polishing order on left.

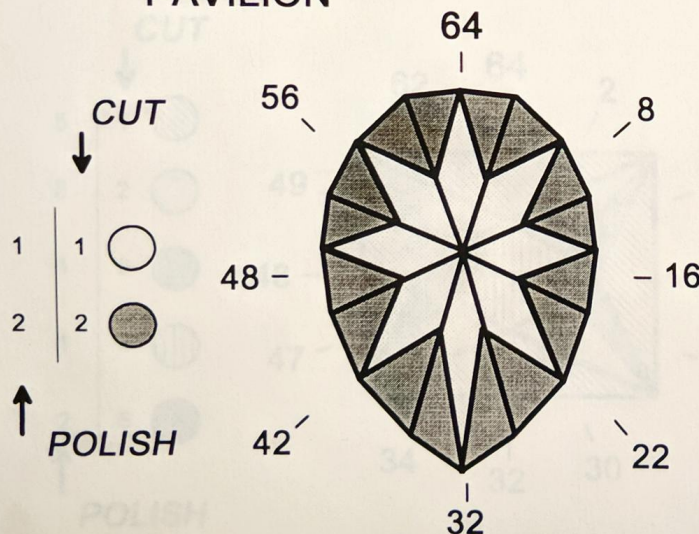
CROWN



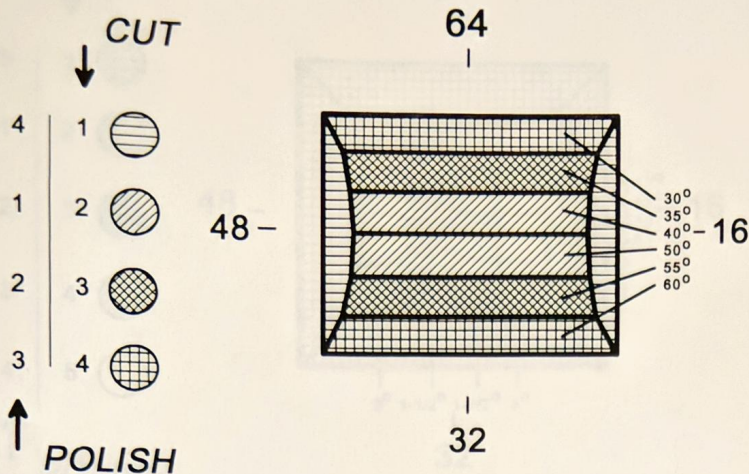
SIDE VIEW



PAVILION



CROWN



64 Index - Angles for Quartz

ORDER OF CUTTING - Crown

GRIND 1st: Two facets at 42° indexing 48-16.

Place dopped stone in 45° dop holder.

~~GRIND 2nd~~ One facet at 50°

One facet at 40°

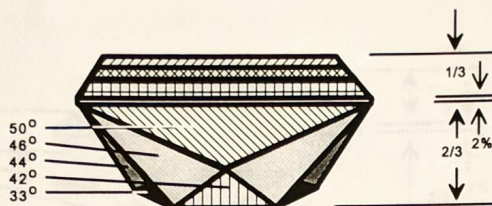
GRIND 3rd: One facet at 55°

One facet at 35°

GRIND 4th: One facet at 60°

One facet at 30°

SIDE VIEW



ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

GRIND 1st: Four facets at 50° indexing 64-32, 16-48.

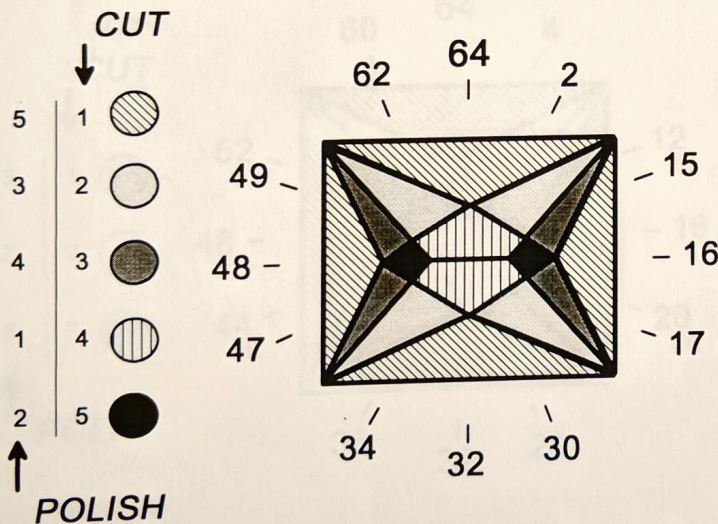
GRIND 2nd: Four facets at 46° indexing 2-62, 30-34.

GRIND 3rd: Four facets at 44° indexing 15-17, 47-49.

GRIND 4th: Two facets at 42° indexing 64-32.

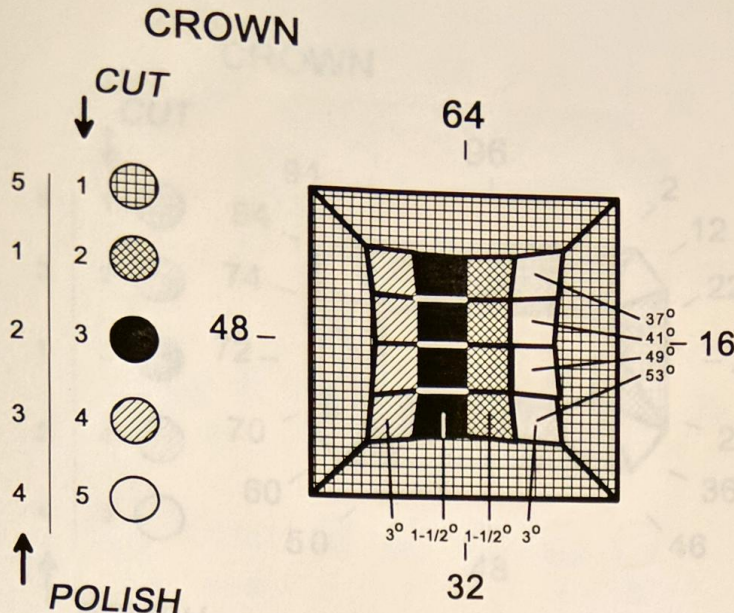
GRIND 5th: Two facets at 33° indexing 16-48.

PAVILION



ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.



64 Index - Angles for Quartz

ORDER OF CUTTING - Crown

GRIND 1st: After grinding girdle square 90°, grind four facets at 42° indexing 64-16-32-48.

Remove and insert in 45° dop holder, being sure that the 42° facet is aligned exactly with 64 index. The following facets are all cut using index 64.

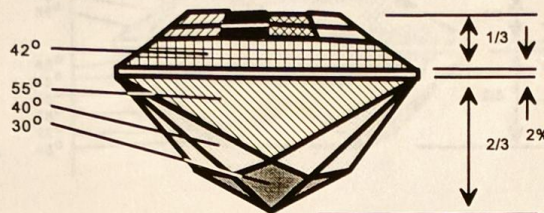
GRIND 2nd: Four facets by compounding 1-1/2° to the right using 37°, 41°, 49° and 53°.

GRIND 3rd: Four facets by compounding 1-1/2° to the left using 37°, 41°, 49° and 53°.

GRIND 4th: Four facets by compounding 3° to the left using 37°, 41°, 49° and 53°.

GRIND 5th: Four facets by compounding 3° to the right using 37°, 41°, 49° and 53°.

SIDE VIEW



ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

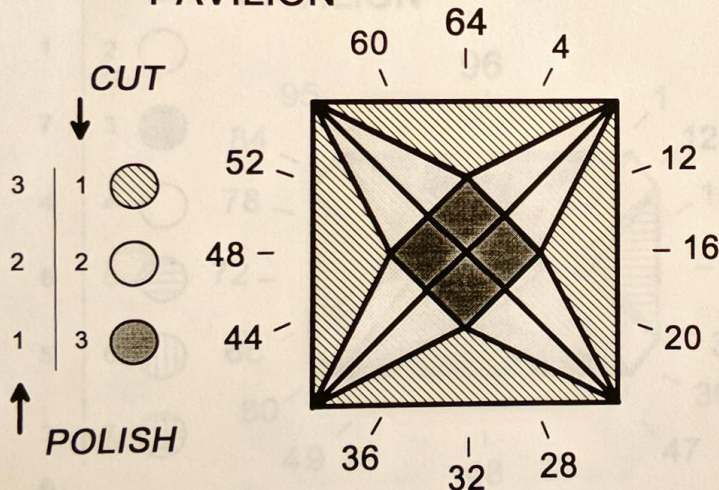
ORDER OF CUTTING - Pavilion

GRIND 1st: Four facets at 55° indexing 64-16-32-48.

GRIND 2nd: Eight facets at 40° indexing 4-60, 44-52, 12-20, 28-36.

GRIND 3rd: Four facets at 30° indexing 64-16-32-48.

PAVILION



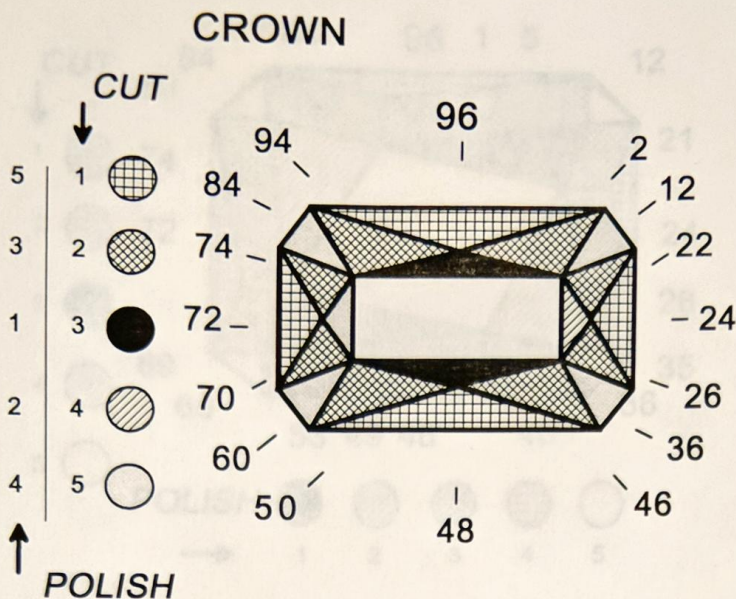
ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.

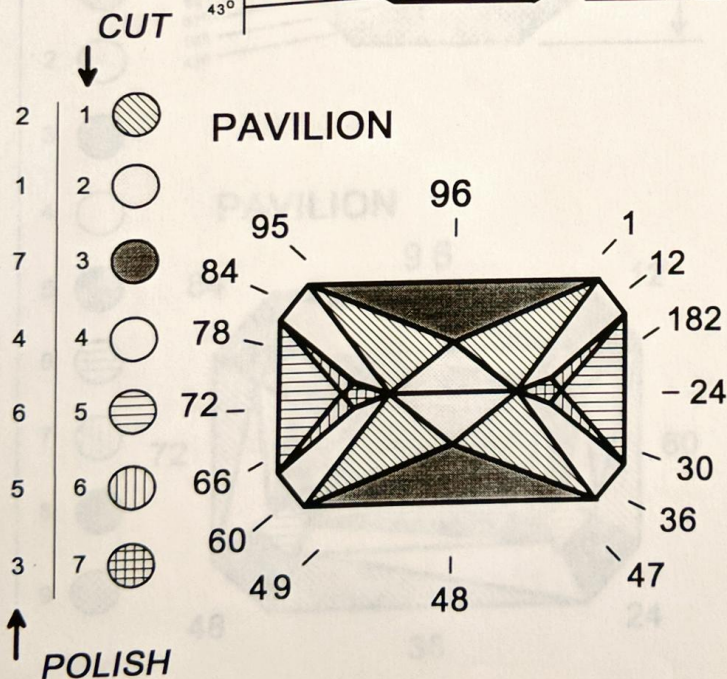
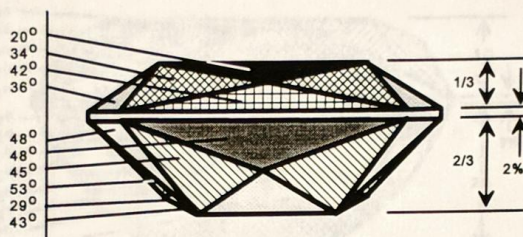
NOTE: ALWAYS RETURN TO "0" SETTING ON COMPOUND ANGLE ADJUSTER WHEN COMPOUNDING IS NOT INDICATED.

SCISSORS CUT

No. 16



SIDE VIEW



96 Index - Angles for Quartz

ORDER OF CUTTING - Crown

Cut and polish table in 45° dop holder. Table to be approximately 40% of girdle width after crown is faceted.

GRIND 1st: Four facets at 42° indexing 96-24-48-72.

GRIND 2nd: Eight facets at 34° indexing 2-94, 46-50, 22-26, 70-74.

GRIND 3rd: Two facets at 20° indexing 96-48.

GRIND 4th: Two facets at 23° indexing 24-72.

GRIND 5th: Four facets at 36° indexing 12-36-60-84.

ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

GRIND 1st: Four facets at 45° indexing 1-95, 47-49.

GRIND 2nd: Two facets at 43° indexing 96-48.

GRIND 3rd: Two facets at 48° indexing 96-48.

GRIND 4th: Four facets at 48° indexing 12-36, 60-84.

GRIND 5th: Two facets at 47° indexing 24-72.

GRIND 6th: Four facets at 53° indexing 18-30, 66-78.

GRIND 7th: Two facets at 29° indexing 24-72.

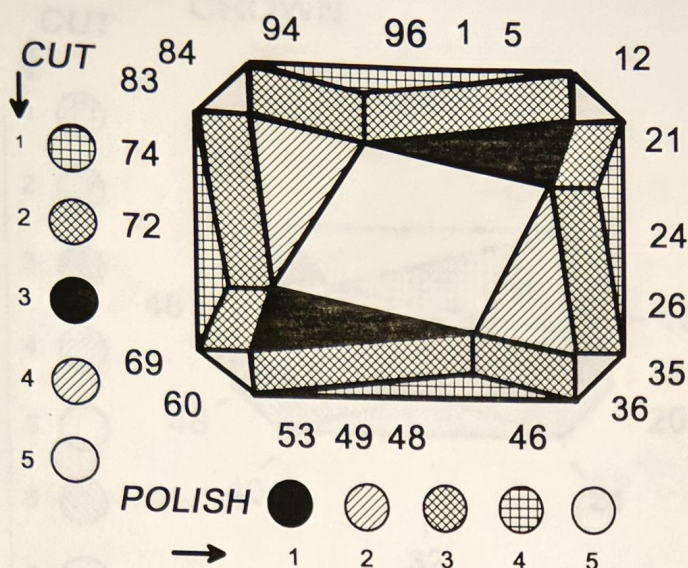
ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.

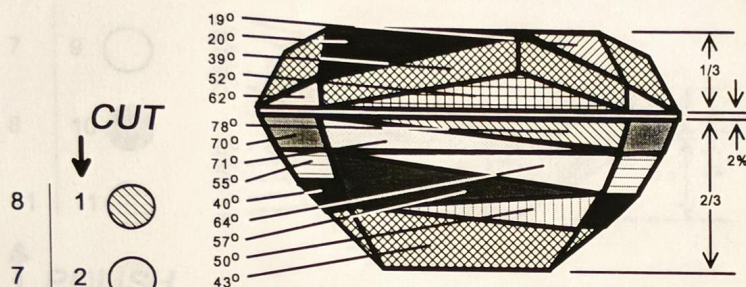
ZIGZAG CUT

No. 17

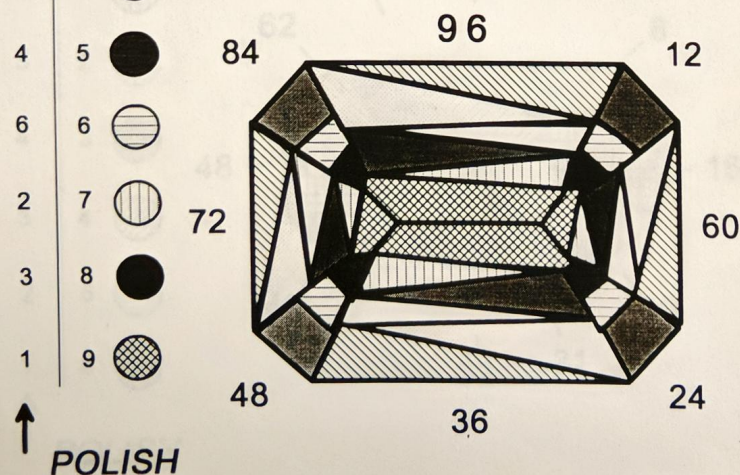
CROWN



SIDE VIEW



PAVILION



96 Index - Angles for Quartz

ORDER OF CUTTING - Crown

Cut and polish table in 45° dop holder. Table to be approximately 40% of girdle width after crown is faceted.

GRIND 1st: Four facets at 52° indexing 96-24-48-72.

GRIND 2nd: Eight facets at 39° indexing 1-94, 46-49, 21-26, 69-74.

GRIND 3rd: Two facets at 20° indexing 5-53.

GRIND 4th: Two facets at 19° indexing 35-83.

GRIND 5th: Four facets at 62° indexing 12-36-60-84.

ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

Note: C.L. = Compound Adjust Left

GRIND 1st: Four facets at 78° indexing 96-24-48-72.

GRIND 2nd: Four facets at 71° indexing 96-24-48-72; C.L. 1-1/2°.

GRIND 3rd: Four facets at 70° indexing 12-36-60-84.

GRIND 4th: Four facets at 64° indexing 96-24-48-72.

GRIND 5th: Four facets at 57° indexing 96-24-48-72; C.L. 1-1/2°.

GRIND 6th: Four facets at 55° indexing 12-36-60-84.

GRIND 7th: Four facets at 50° indexing 96-24-48-72.

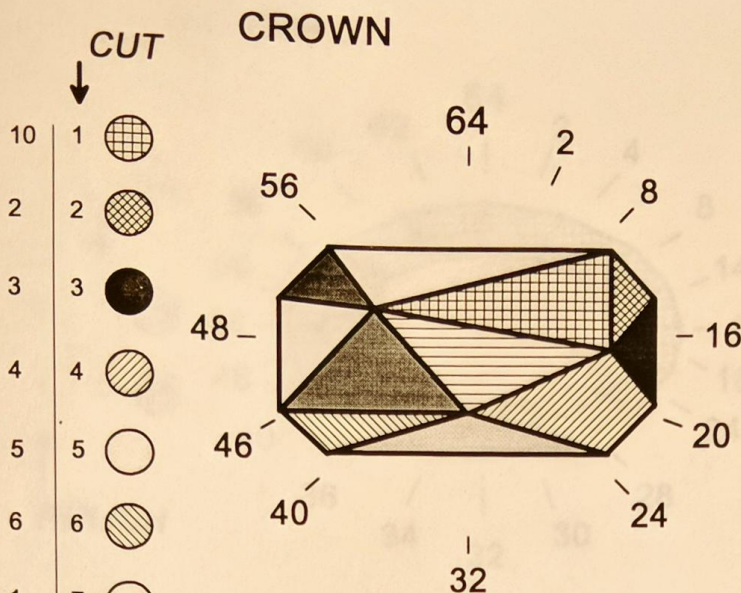
GRIND 8th: Four facets at 40° indexing 12-36-60-84.

GRIND 9th: Four facets at 43° indexing 96-24-48-72; C.L. 1-1/2°.

ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.

NOTE: ALWAYS RETURN TO "0" SETTING ON COMPOUND ANGLE ADJUSTER WHEN COMPOUNDING IS NOT INDICATED.

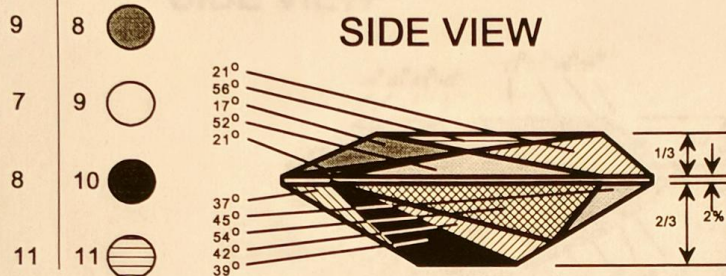


64 Index - Angles for Quartz

ORDER OF CUTTING - Crown

Cut and polish table in 45° angle dop approximately 40% of the width of the stone at the girdle.

- GRIND 1st: One facet at 18° indexing 2
- GRIND 2nd: One facet at 25° indexing 8
- GRIND 3rd: One facet at 45° indexing 16
- GRIND 4th: One facet at 21° indexing 24
- GRIND 5th: One facet at 52° indexing 32
- GRIND 6th: One facet at 21° indexing 40
- GRIND 7th: One facet at 35° indexing 64
- GRIND 8th: One facet at 17° indexing 46
- GRIND 9th: One facet at 20° indexing 48
- GRIND 10th: One facet at 26° indexing 56



Polish before changing to 45° dop holder for grind 11. See polishing order on left, using same angles and indices as with grinding.

GRIND 11th: Change to 45° dop holder and grind one facet at 56° dop holder and polish table.

ORDER OF CUTTING - Pavilion

Remove from 45° dop holder.

First Stage:

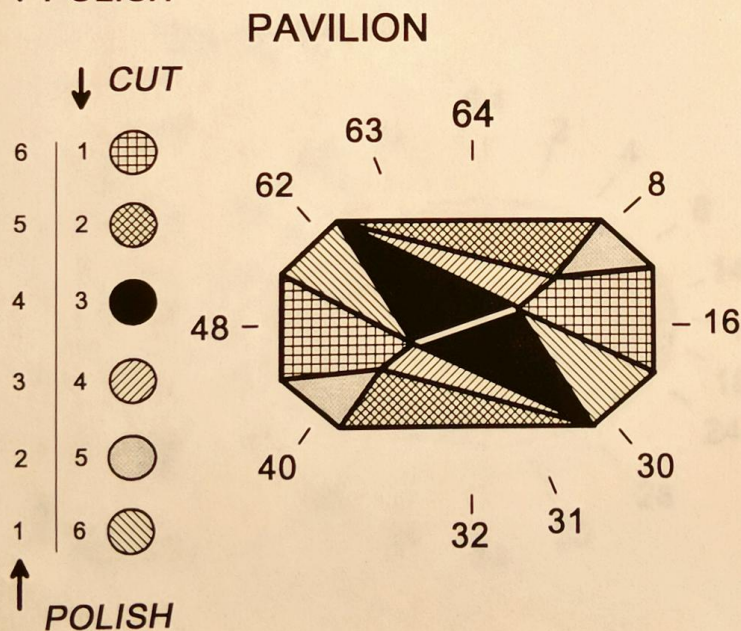
- GRIND 1st: Two facets at 43° indexing 16-48.
- GRIND 2nd: Two facets at 54° indexing 32-64.
- GRIND 3rd: Two facets at 39° indexing 30-62.

Second Stage:

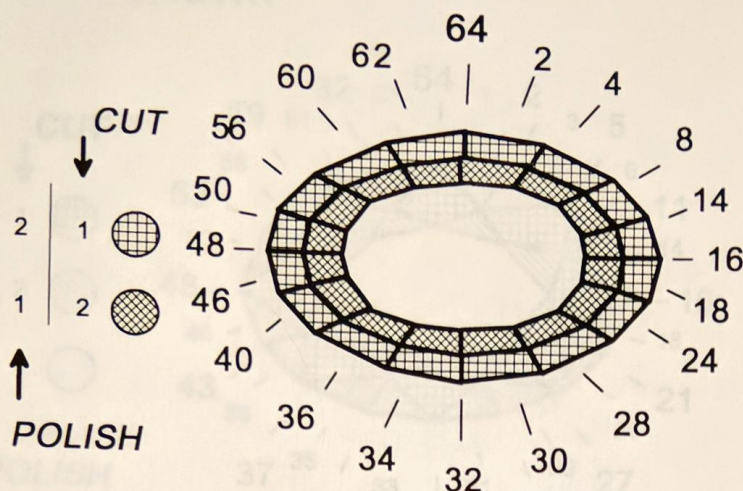
- GRIND 4th: Two facets at 42° indexing 31-63.
- GRIND 5th: Two facets at 45° indexing 8-40.
- GRIND 6th: Two facets at 37° indexing 24-56.

ORDER OF POLISHING - Pavilion

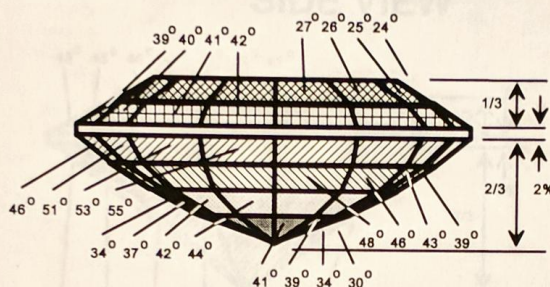
See polishing order on left, using same angles and indices as with grinding.



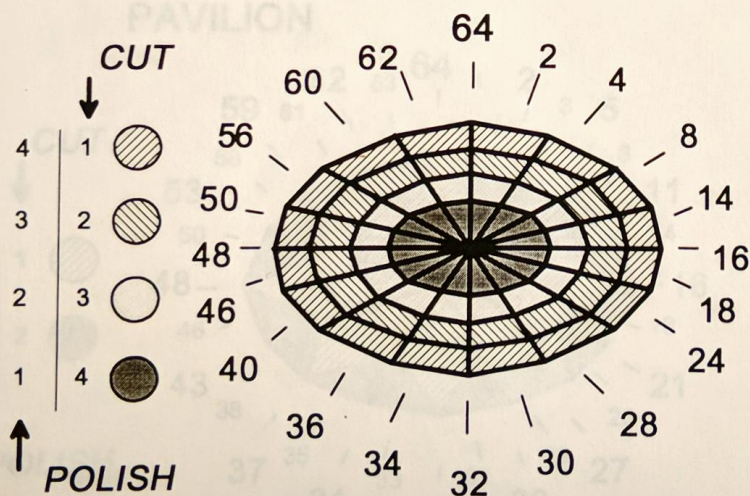
CROWN



SIDE VIEW



PAVILION



64 Index - Angles for Quartz

ORDER OF CUTTING - Crown

NOTE: As in many cuts that are freehand preformed, it may be necessary to change angles from those given. This will be noticed mainly at the girdle. If necessary, adjust angles to keep a level girdle.

Cut and polish table in 45° dop holder. Table to be approximately 40% to 50% of girdle width when crown is faceted.

GRIND 1st:

- Four facets at 42° indexing 2-62, 30-34.
- Four facets at 41° indexing 4-60, 28-36.
- Four facets at 40° indexing 8-56, 24-40.
- Four facets at 39° indexing 14-18, 46-50.

GRIND 2nd:

- Four facets at 27° indexing 2-62, 30-34.
- Four facets at 26° indexing 4-60, 28-36.
- Four facets at 25° indexing 8-56, 24-40.
- Four facets at 24° indexing 14-18, 46-50.

ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

GRIND 1st:

- Four facets at 55° indexing 2-62, 30-34.
- Four facets at 53° indexing 4-60, 28-36.
- Four facets at 51° indexing 8-56, 24-40.
- Four facets at 46° indexing 14-18, 46-50.

GRIND 2nd:

- Four facets at 48° indexing 2-62, 30-34.
- Four facets at 46° indexing 4-60, 28-36.
- Four facets at 43° indexing 8-56, 24-40.
- Four facets at 39° indexing 14-18, 46-50.

GRIND 3rd:

- Four facets at 44° indexing 2-62, 30-34.
- Four facets at 42° indexing 4-60, 28-36.
- Four facets at 37° indexing 8-56, 24-40.
- Four facets at 34° indexing 14-18, 46-50.

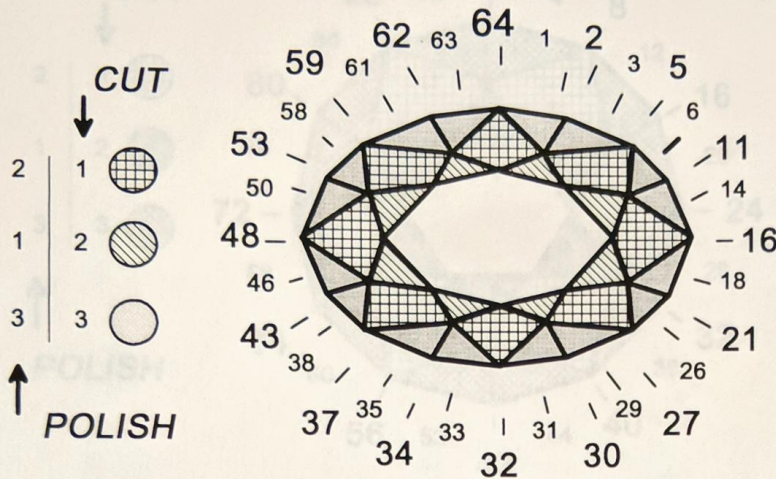
GRIND 4th:

- Four facets at 41° indexing 2-62, 30-34.
- Four facets at 39° indexing 4-60, 28-36.
- Four facets at 34° indexing 8-56, 24-40.
- Four facets at 30° indexing 14-18, 46-50.

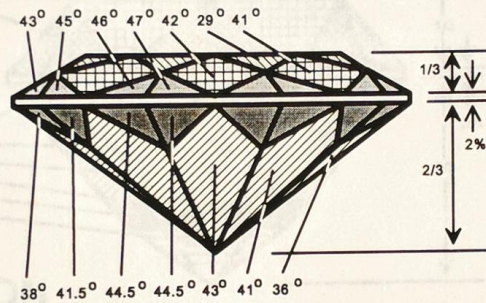
ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.

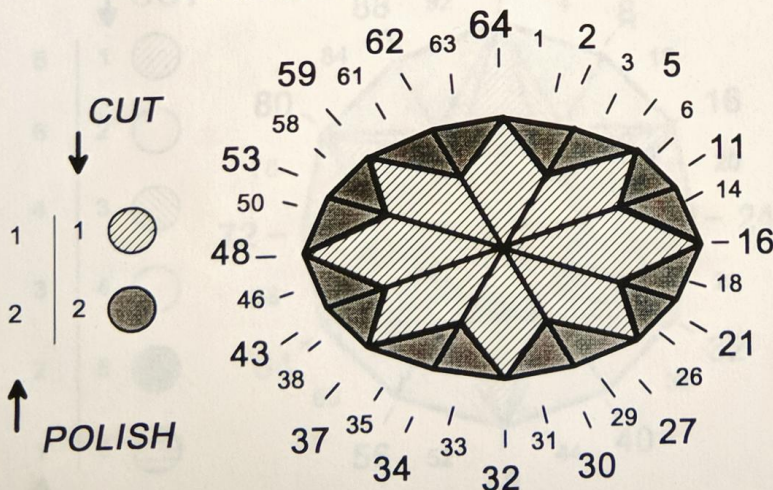
CROWN



SIDE VIEW



PAVILION



64 Index - Angles for Quartz

ORDER OF CUTTING - Crown

Cut and polish table in 45° angle dop approximately 40% of the width of the stone at the girdle.

NOTE: As in all other freehand shapes, the angles for the girdle facets will vary somewhat with any deviation from the shape of the example. Compensate for this by raising or lowering angle as needed to keep a straight girdle.

GRIND 1st:

- Two facets at 42° indexing 64-32.
- Four facets at 41° indexing 5-27, 37-59.
- Two facets at 36° indexing 16-48.

GRIND 2nd:

- Four facets at 29° indexing 2-62, 30-34.
- Four facets at 20° indexing 11-53, 21-43.

GRIND 3rd:

- Four facets at 47° indexing 1-63, 31-33.
- Four facets at 46° indexing 3-61, 29-35.
- Four facets at 45° indexing 6-58, 26-38.
- Four facets at 43° indexing 14-50, 18-46.

ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

GRIND 1st:

- Two facets at 43° indexing 32-64.
- Four facets at 41° indexing 5-27, 37-59.
- Two facets at 36° indexing 16-48.

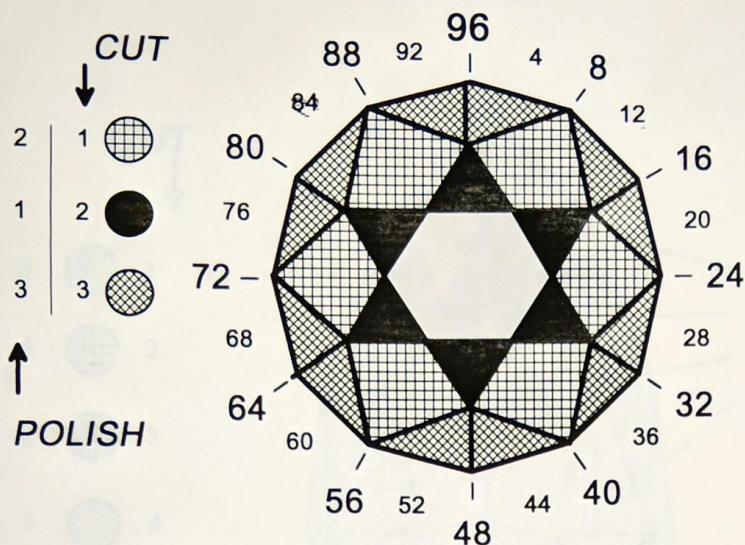
GRIND 2nd:

- Eight facets at $44\frac{1}{2}^\circ$ indexing 1-63, 31-33, 3-61, 29-35.
- Four facets at $41\frac{1}{2}^\circ$ indexing 6-58, 26-38.
- Four facets at 38° indexing 14-50, 18-46.

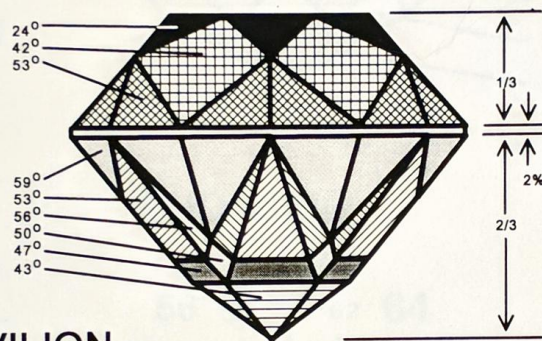
ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.

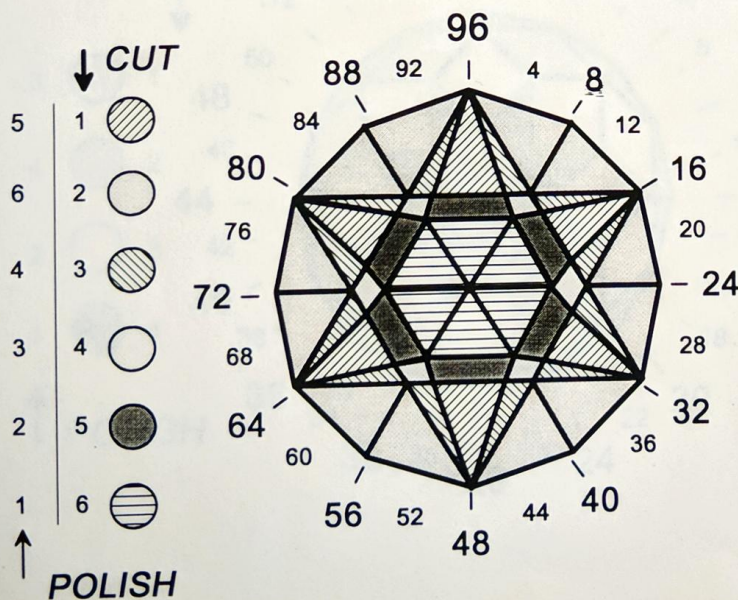
CROWN



SIDE VIEW



PAVILION



96 Index - Angles for Quartz

ORDER OF CUTTING - Crown

Cut and polish table in 45° angle dop approximately 40% of the width of the stone at the girdle.

GRIND 1st: Six facets at 42° indexing 8-24-40-56-72-88.

GRIND 2nd: Six facets at 24° indexing 16-32-48-64-80-96.

GRIND 3rd: Twelve facets at 53° indexing 4-12-20-28-36-44-52-60-68-76-84-92.

ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

GRIND 1st: Six facets at 53° indexing 16-32-48-64-80-96.

GRIND 2nd: Twelve facets at 59° indexing 4-12-20-28-36-44-52-60-68-76-84-92.

GRIND 3rd: Twelve facets at 56° indexing 13-19, 29-35, 45-51, 61-67, 77-83, 93-3.

GRIND 4th: Six facets at 50° indexing 8-24-40-56-72-88.

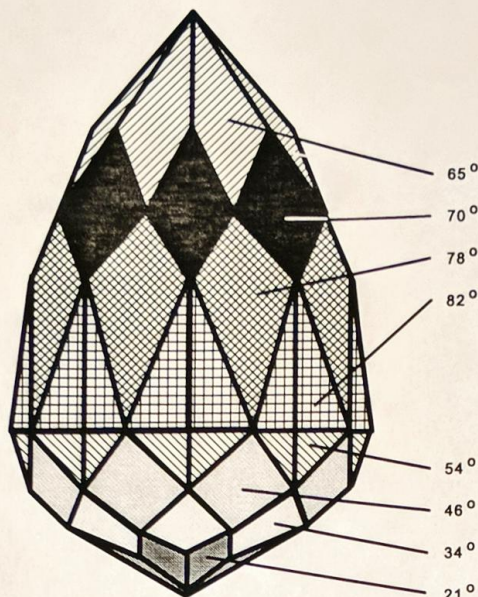
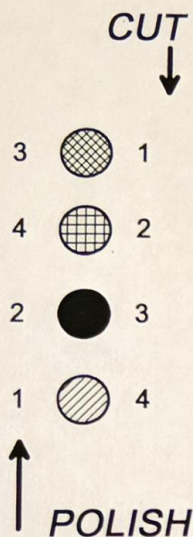
GRIND 5th: Six facets at 47° indexing 16-32-48-64-80-96.

GRIND 6th: Six facets at 43° indexing 16-32-48-64-80-96.

ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.

SIDE VIEW



64 Index - Angles for Quartz

NOTE: Top of stone should be cut first.

ORDER OF CUTTING - Top

GRIND 1st: Eight facets at 78° indexing 64-8-16-24-32-40-48-56.

GRIND 2nd: Sixteen facets at 82° indexing 2-6-10-14-18-22-26-30-34-38-42-46-50-54-58-62.

GRIND 3rd: Eight facets at 70° indexing 4-12-20-28-36-44-52-60.

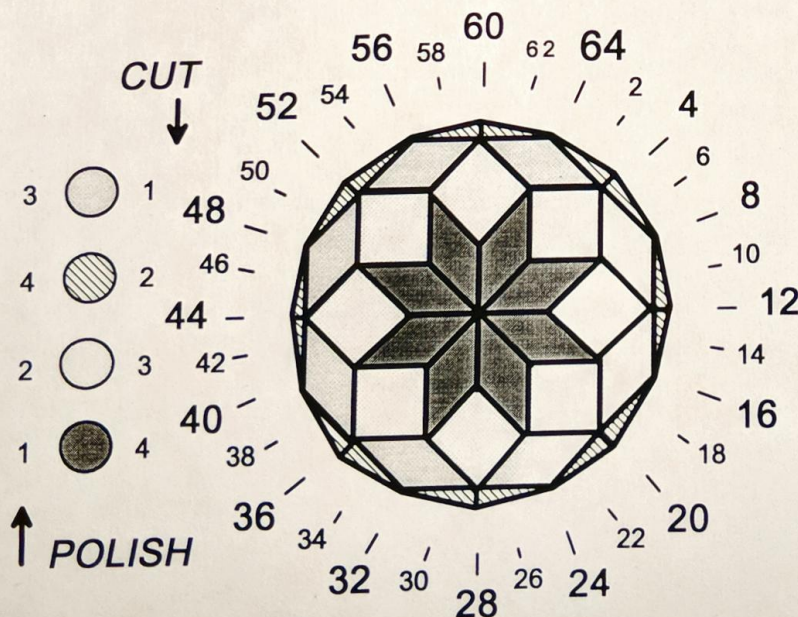
GRIND 4th: Eight facets at 65° indexing 64-8-16-etc.

ORDER OF POLISHING - Top

See polishing order on left, using same angles and indices as with grinding.

OPTIONAL: Girdle facets may be ground first, or last, at 90° using Indices of 2-6-10-etc. Polishing should be completed at this setting.

END VIEW



ORDER OF CUTTING - Bottom

GRIND 1st: Eight facets at 46° indexing 64-8-16-etc.

GRIND 2nd: Sixteen facets at 54° indexing 2-6-10-etc.

GRIND 3rd: Eight facets at 34° indexing 4-12-20-etc.

GRIND 4th: Eight facets at 21° indexing 64-8-16-etc.

ORDER OF POLISHING - Bottom

See polishing order on left, using same angles and indices as with grinding.